

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light rainfall reported from few parts of Punjab K.P, Balochistan, G.B & Kashmir while dry weather was reported from Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 4.0 mm at Parachinar during the last decade.
- ❖ Highest maximum temperature recorded as 50.2°C at Sh. Benazirabad during the last decade.
- ❖ Mainly dry and hot weather is expected in most parts of the country during the current decade; however light to moderate rainfall is expected in most of the parts of Punjab, KP, GB, Kashmir and light rainfall is expected at scattered places of Baluchistan and Sindh.
- ❖ Measures may be taken to preserve the standing crops/orchids from the damaging impacts of extreme weather conditions like thunder/dust storm, gusty winds, hails etc.
- ❖ Wheat crop is at final stages in northern half of the country. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- ❖ The fields got fallow after the harvesting of wheat may be deeply ploughed and leave empty for a few weeks.

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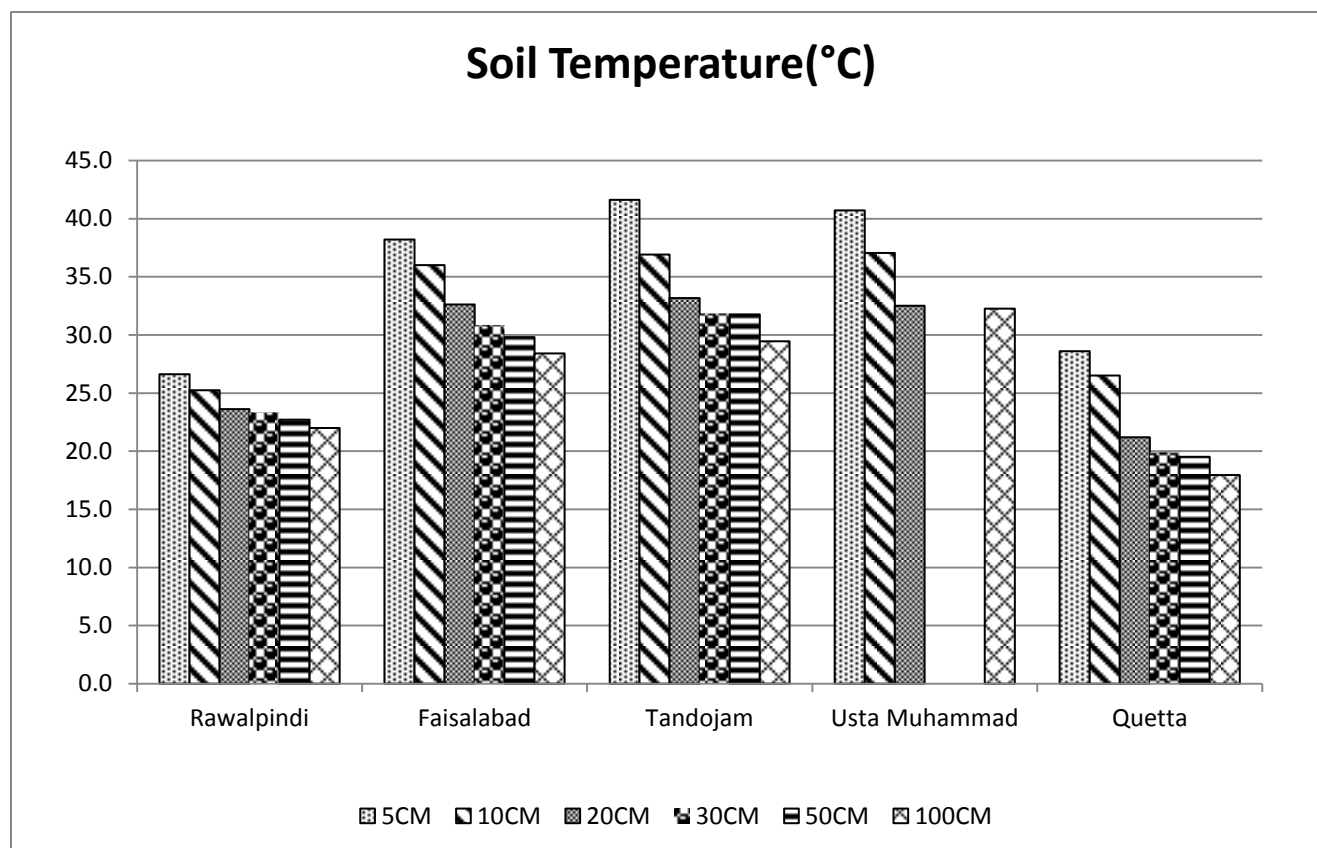
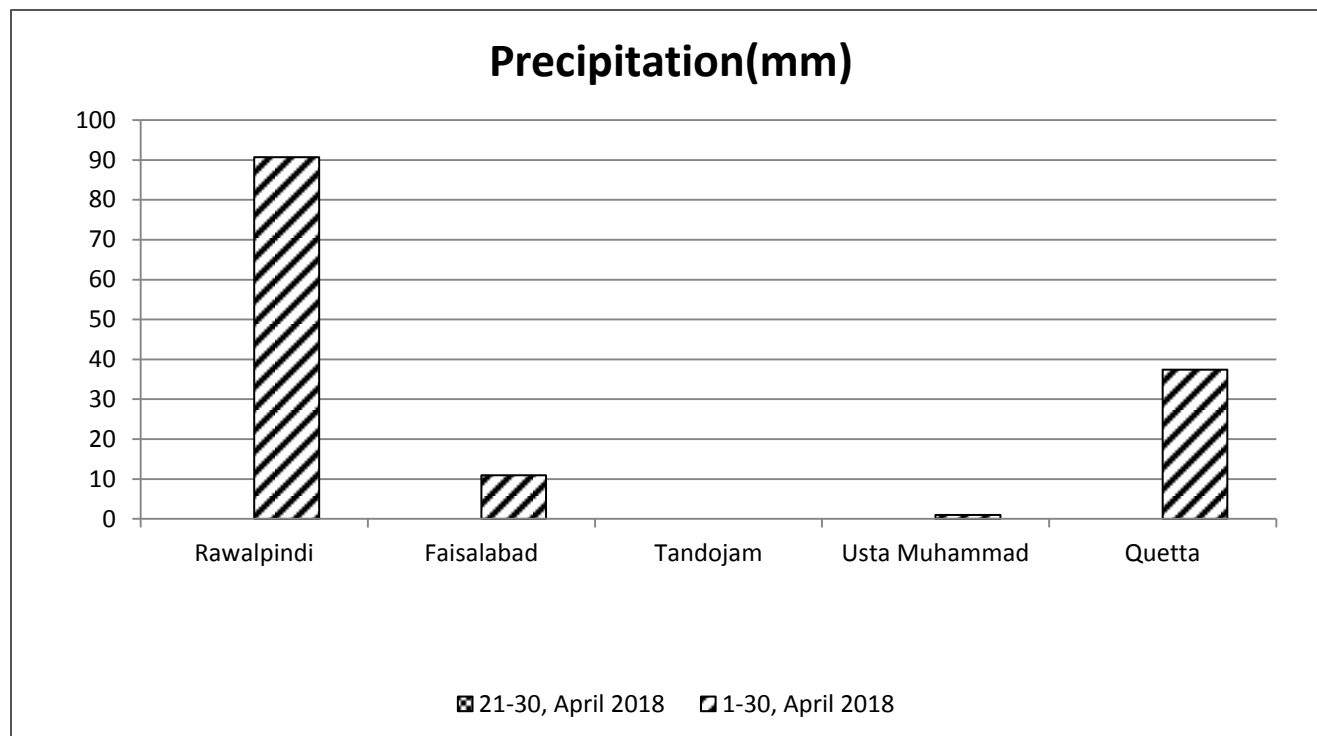
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Meteorological Conditions during 3rd Decade of April, 2018

| Sr. No. | Station | Precipitation (mm) | | | Air Temperature (°C) | | | Soil Temperatures (°C) | | | | | | R.H (%) | Sunshine Duration(hours) | Wind Speed (km/hr) | ETo (mm/day) |
|---------|------------|--------------------|--------|------|----------------------|----------|------|------------------------|------|------|------|------|-------|---------|--------------------------|--------------------|--------------|
| | | Normal | Actual | Dep | Tmax Dep | Tmin Dep | Mean | 5cm | 10cm | 20cm | 30cm | 50cm | 100cm | | | | |
| 1 | Rawalpindi | 1.9 | 0.0 | -1.9 | 1.4 | -2.0 | 25.4 | 26.6 | 25.3 | 23.6 | 23.4 | 22.7 | 22.0 | 40 | 93.3 | 2.2 | 4.7 |
| 2 | Faisalabad | 0.5 | 0.0 | -0.5 | 1.3 | 0.1 | 30.6 | 38.2 | 36.0 | 32.6 | 30.9 | 29.8 | 28.4 | 33 | 100.7 | 2.4 | 5.4 |
| 3 | Jhelum | 1.0 | 0.0 | -1.0 | 0.9 | -2.2 | 28.3 | 34.2 | 31.6 | 27.2 | 26.4 | 26.6 | *** | 35 | 110.4 | 3.1 | 5.7 |
| 4 | Lahore | 0.3 | 0.0 | -0.3 | 1.6 | -1.1 | 30.9 | 32.3 | 31.2 | 28.5 | 27.0 | *** | 26.2 | 33 | 90.5 | 0.3 | 4.2 |
| 5 | Sargodha | 0.7 | 0.0 | -0.7 | -1.4 | -1.1 | 29.0 | 35.7 | 32.9 | 28.8 | 27.4 | *** | 26.0 | 43 | 97.7 | 3.9 | 5.7 |
| 6 | Multan | 0.2 | 0.0 | -0.2 | 0.6 | -0.1 | 31.7 | *** | *** | *** | *** | *** | *** | 27 | 106.1 | 4.1 | 6.2 |
| 7 | Khanpur | 0.1 | 0.0 | -0.1 | 1.4 | -1.5 | 32.2 | *** | 33.4 | 33.3 | 33.1 | 33.0 | 31.3 | 25 | 98.1 | 4.4 | 6.5 |
| 8 | Tandojam | 0.1 | 0.0 | -0.1 | 0.8 | -2.1 | 30.7 | 41.6 | 36.9 | 33.2 | 31.9 | 31.8 | 29.5 | 40 | 96.7 | 9.7 | 8.4 |
| 9 | Sakrand☆ | 0.0 | 0.0 | 0.0 | 0.6 | 0.1 | 32.5 | 43.4 | *** | *** | *** | *** | 31.2 | 31 | 115.1 | 8.0 | 8.5 |
| 11 | Rohri | 0.0 | 0.0 | 0.0 | 1.6 | -1.2 | 34.3 | *** | *** | *** | *** | *** | *** | 22 | 104.9 | 2.0 | 5.5 |
| 12 | D.I Khan | 0.3 | 0.0 | -0.3 | 2.3 | -1.4 | 29.9 | 31.7 | 29.3 | 27.4 | 27.0 | 16.0 | 25.4 | 41 | 100.6 | 7.3 | 7.2 |
| 13 | Peshawar | 1.0 | 0.0 | -1.0 | 1.9 | -2.4 | 26.5 | 31.7 | 30.6 | 26.6 | 24.5 | 24.2 | 23.4 | 47 | 87.5 | 1.3 | 4.4 |
| 14 | Usta .M | 0.2 | 0.0 | -0.2 | 0.4 | 1.3 | 33.8 | 40.7 | 37.1 | 32.5 | *** | *** | 32.3 | 25 | *** | 4.7 | 7.2 |
| 15 | Quetta | 0.3 | 0.0 | -0.3 | -1.3 | 0.8 | 20.1 | 28.6 | 26.5 | 21.2 | 19.9 | 19.5 | 18.0 | 22 | 107.5 | 6.0 | 5.8 |
| 16 | Skardu | 0.7 | 0.0 | -0.7 | 2.3 | -0.9 | 14.9 | *** | *** | *** | *** | *** | *** | 30 | 84.7 | 3.1 | 4.0 |
| 17 | Gilgit | 0.7 | 0.0 | -0.7 | 1.6 | -0.7 | 19.2 | *** | *** | *** | *** | *** | *** | 31 | 106.4 | 2.9 | 4.6 |

Table-1: Meteorological parameters for selected station of Pakistan. “Dep” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “% Dep” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures respectively. ETo stands for reference crop evapotranspiration. *** stands for no data and ☆) indicates the station with five year’s climatic (normal) data for computing departures.

Graph at RAMCs during April, 2018



Past Weather (21st to 30th April, 2018)

Light rainfall reported from few parts of Punjab K.P, Balochistan, G.B & Kashmir while dry weather was reported from Sindh during the last decade.

1.1 Punjab

Light rainfall reported at one place of Punjab i.e. Mianwali. Decadal maximum raised above normal by 0.8°C & minimum dropped below normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 34%, 99.5hrs, 2.9km/hr and 5.5mm/day respectively.

1.2 Sindh

Dry weather reported from agricultural plains of Sindh. Decadal maximum raised above normal by 1.0°C & minimum dropped below normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 31%, 106.5hrs, 6.6km/hr and 7.5mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

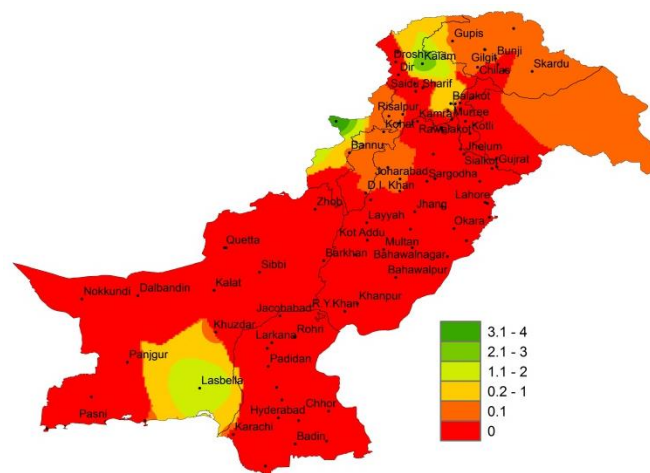
Light rainfall reported from few agricultural plains of KP. Chief amount of rainfall is received at Parachinar, Kalam & Peshawar. Decadal maximum raised above normal by 2.1°C & minimum dropped below normal by 1.9°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 44%, 94.1hrs, 4.3km/hr and 5.8mm/day respectively.

1.4 Balochistan

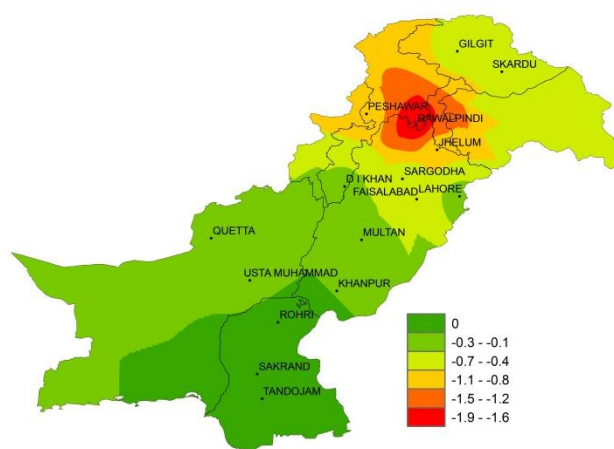
Light rainfall reported at one place of Balochistan i.e. Lasbella. Decadal maximum dropped below normal by 0.5°C & minimum raised above normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 24%, 107.5hrs, 5.4km/hr and 6.5mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

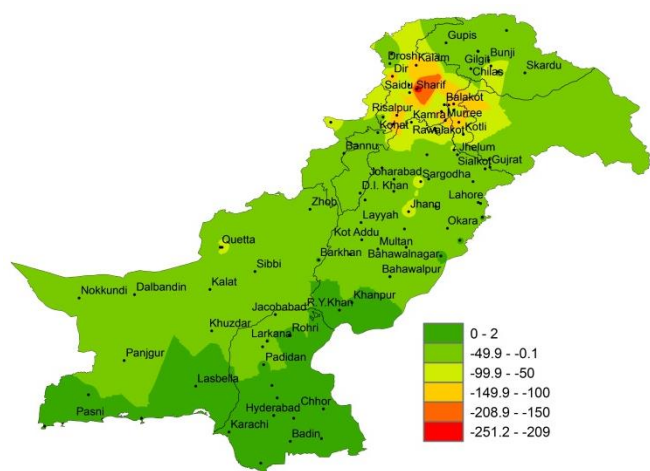
Light rainfall reported from few agricultural plains of G.B. Chief amount of rainfall is received at Bagrote, Gilgit, Hunza & Skardu. Decadal maximum raised above normal by 2.0°C & minimum dropped below normal by 0.8°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 31%, 95.6hrs, 3.0km/hr and 4.3mm/day respectively.



I. Actual rainfall



II. Departure of rainfall from Normal



III. Departure of rainfall from Previous Decade

Figure.1: Rainfall distribution during previous decade (mm)

2(a) Past Weather for Major Agricultural Plains (21st to 30th April, 2018)

2.1 RAMC, Rawalpindi (Potohar region)

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 40%. Mean day temperature was 35.0°C while night temperature recorded as 15.7°C with 93.3hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *north westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 33%. Mean day temperature was 39.5°C while night temperature recorded as 21.7°C with 100.7hours bright sunshine duration. Wind speed recorded as 2.4km/hr with mean wind direction *north westerly*.

Wheat: *Very good condition, Harvested.*

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 40%. Mean day temperature was 41.4°C while night temperature recorded as 20.0°C with 96.7hours bright sunshine duration. Wind speed recorded as 9.7km/h with mean wind direction *south westerly*.

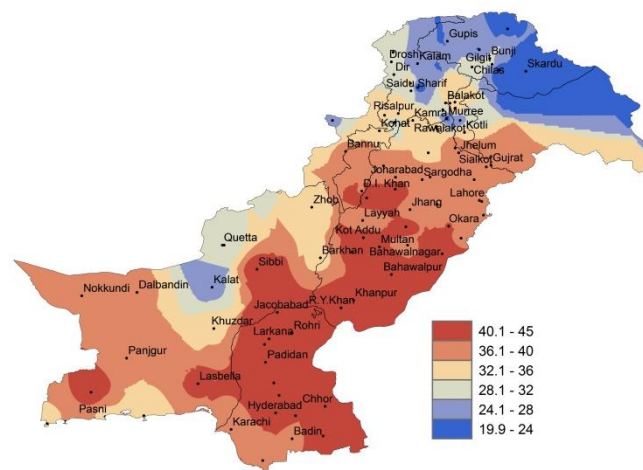
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 25%. Mean day temperature was 43.6°C while night temperature recorded as 23.9°C. Wind speed recorded as 4.7km/h with mean wind direction *variable*.

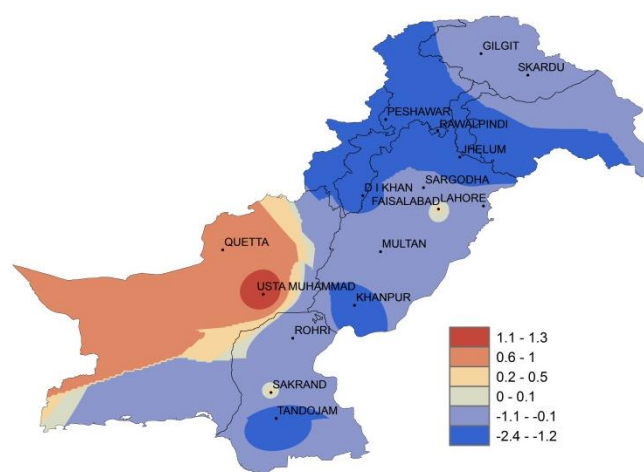
Wheat: *Harvested.*

2.5 RAMC, Quetta (Northern Balochistan)

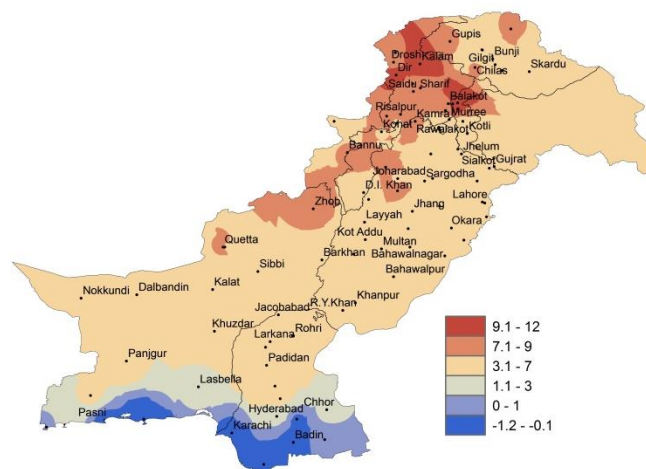
Dry weather reported during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 22%. Mean day temperature was 27.5°C while night temperature recorded as 12.7°C with 107.5hours bright sunshine duration. Wind speed recorded as 6.0km/hr with mean wind direction *north westerly*.



I. Actual max-temp



II. Departure of max-temp from Normal



III. Departure of max-temp from Previous Decade

Figure.2: Minimum Temperature distribution during previous decade (°C)

2(b) Past Weather for Sub-Regional Agricultural Plains (21st to 30th April, 2018)

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 35%. Mean day temperature was 37.9°C while night temperature recorded as 18.7°C with 110.4hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *north westerly*.

2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 33%. Mean day temperature was 38.7°C while night temperature recorded as 23.0°C with 90.5hours bright sunshine duration. Wind speed recorded as 0.3km/hr with mean wind direction *south westerly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 43%. Mean day temperature was 36.7°C while night temperature recorded as 21.2°C with 97.7hours bright sunshine duration. Wind speed recorded 3.9km/hr with mean wind direction *easterly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 04days during the decade. Average relative humidity recorded as 27%. Mean day temperature was 40.1°C while night temperature recorded as 23.2°C with 106.1hours bright sunshine duration. Wind speed recorded 4.1km/hr with mean wind direction *westerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 25%. Mean day temperature was 42.7°C while night temperature recorded as 21.6°C with 98.1hours bright sunshine duration. Wind speed recorded 4.4km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 03days during the decade. Average relative humidity recorded as 31%. Mean day temperature was 42.4°C while night temperature recorded as 22.5°C with 115.1hours bright sunshine duration. Wind speed recorded 8.0km/hr with wind direction *southerly*.

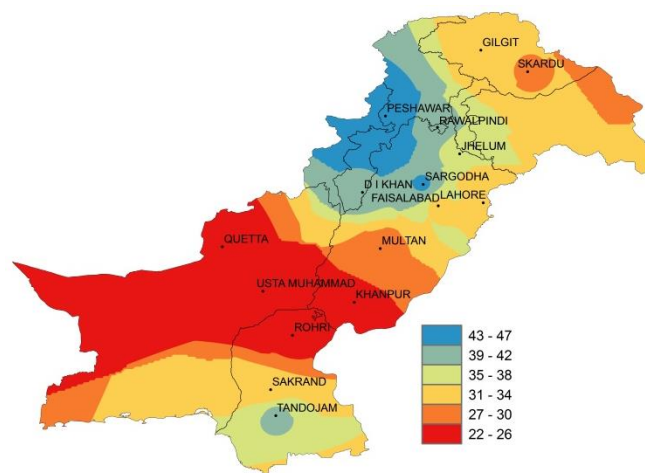


Figure.3: Relative Humidity in Percentage (%)

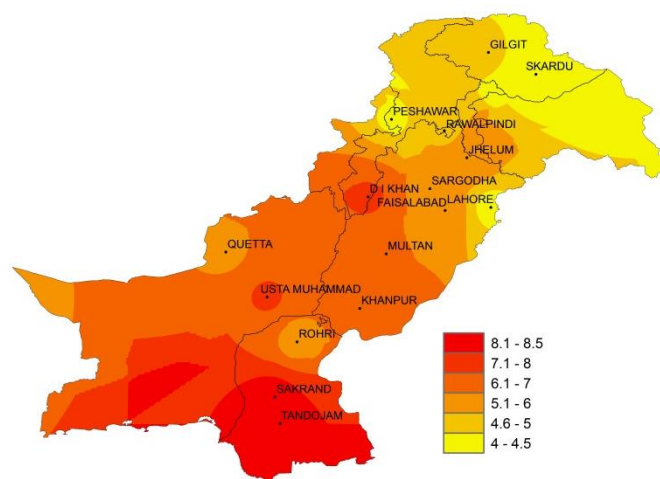


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

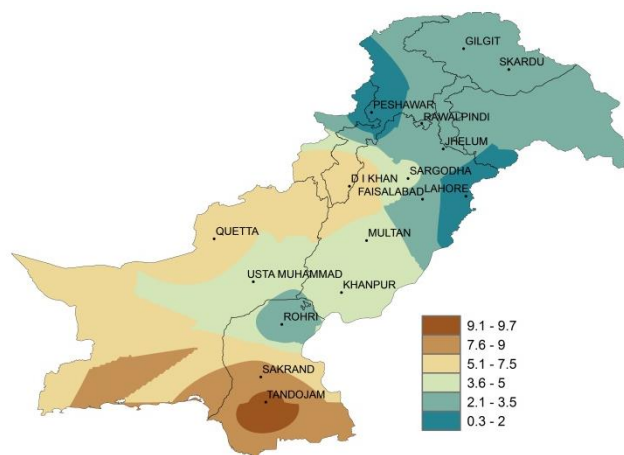


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 22%. Mean day temperature was 43.6°C while night temperature recorded as 24.9°C with 104.9hours bright sunshine duration. Wind speed recorded 2.0km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 01day during the decade. Average relative humidity recorded as 41%. Mean day temperature was 39.8°C while night temperature recorded as 19.9°C with 100.6hours bright sunshine duration. Wind speed recorded as 7.3km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Dry weather reported during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 35.6°C while night temperature recorded as 17.4°C with 87.5hours bright sunshine duration. Wind speed recorded as 1.3km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 02days during the decade. Average relative humidity recorded as 30%. Mean day temperature was 23.2°C while night temperature recorded as 6.5°C with 84.7hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 05days during the decade. Average relative humidity recorded as 31%. Mean day temperature was 29.4°C while night temperature recorded as 8.9°C with 106.4hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *south westerly*.

Ten Days Weather Advisory for Farmers **(2nd to 10th May, 2018)**

3.1 Temperature Forecast

Night temperatures and day temperatures are likely to be slightly normal in most parts of the country during the decade.

3.2 Wind Forecast

- Normal wind pattern may prevail in most of the agricultural plains of the country during the decade; however dust/sand storms may occur in southern Punjab and upper Sindh.

3.3 Rain Forecast

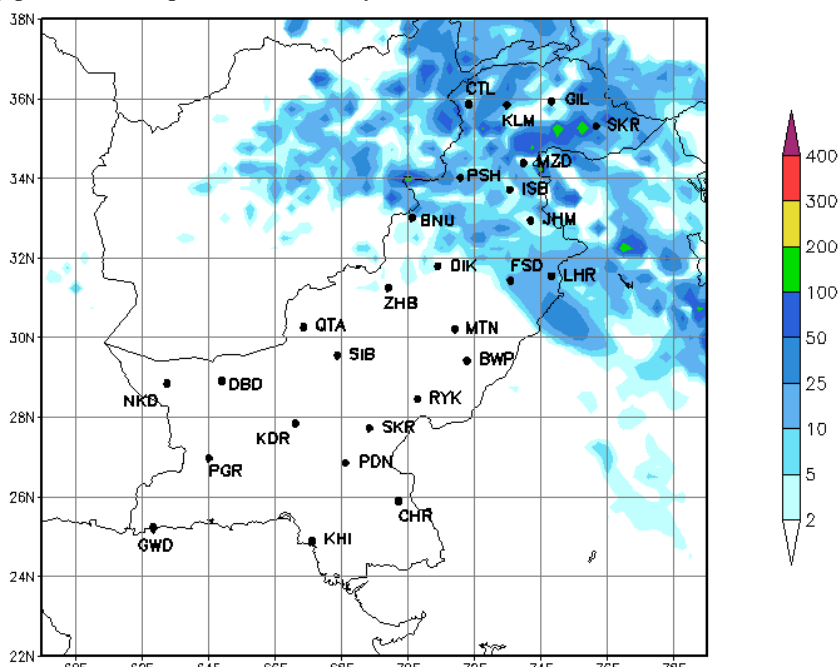
- ❖ **Punjab:** Partly hot and dry weather is expected in most parts while light to moderate rain-thunderstorm is expected during the second half of the decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rain-thunderstorm is expected at most of the places of the province during the decade.
- ❖ **Sindh:** Light to moderate with gusty winds is expected at scattered places in Padidan, Sakrand division during the decade.
- ❖ **Balochistan:** Light rain-thunderstorm with gusty winds is expected at scattered places in Zhob, Quetta division during the decade.
- ❖ **Gilgit-Baltistan:** Light to moderate rain-thunderstorm with gusty winds is expected at isolated places during the decade.
- ❖ **Kashmir:** Light to moderate rain-thunderstorm is expected at most of the places in Kashmir and its adjoining areas during the decade.

3.4 Advisory for Farmers

- ❖ Measures may be taken to preserve the standing crops/orchids from the damaging impacts of extreme weather conditions like thunder/dust storm, gusty winds, hails etc.
- ❖ Wheat crop is at final stages in northern half of the country. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- ❖ The fields got fallow after the harvesting of wheat may be deeply ploughed and leave empty for a few weeks.
- ❖ The farmers of lower half may regularly irrigate their Kharif crops by keeping in view the ongoing hot weather conditions.

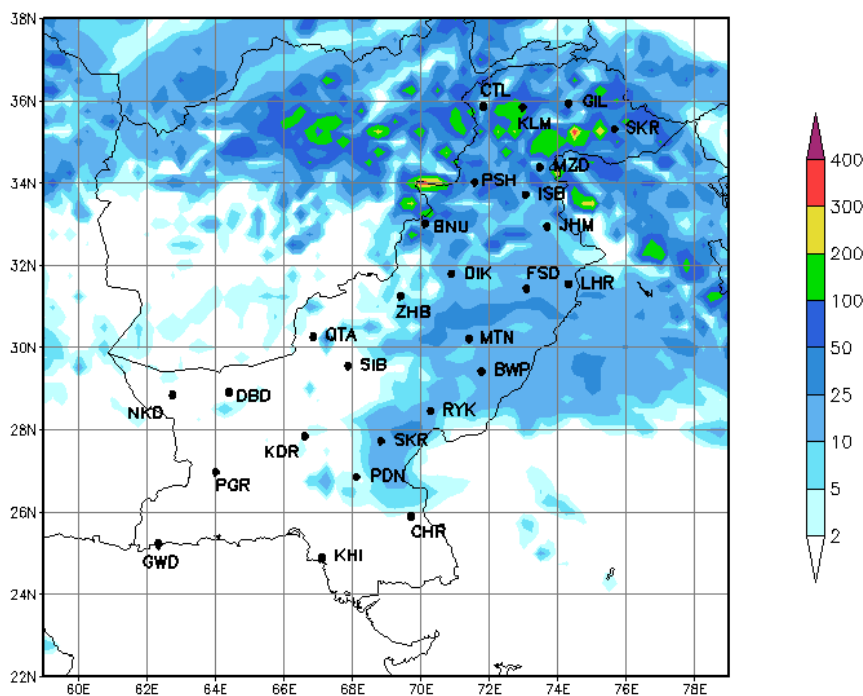
4.1 Precipitation Outlook (2nd to 4th May, 2018)

The forecast for the next three days (2nd to 4th) of the first decade of May, 2018 shows that mostly dry weather is expected in most parts of the country. However light to moderate rainfall is expected at scattered places in Upper Punjab, KP, G.B and Kashmir. Dry weather may prevail in rest parts of the country.



4.2 Precipitation Outlook (5th to 10th May, 2018)

The outlook for the last six days (5th to 10th) of the first decade of May, 2018 shows that light to moderate rainfall is expected at most of the places in KP, Upper Punjab, northern, Kashmir and GB and scattered places of upper Sindh & Baluchistan.



Findings of AgMIP Paksitan, University of Agriculture, Faisalabad

- ❖ There would be significant increase in temperature i.e., 2.8°C in day and 2.2°C in the night during mid-century (2040-2069)
- ❖ There would be significant variability in rainfall patterns (about 25% increase in summer & 12% decrease in winter during 2040-2069)
- ❖ Climate Change will affect the crop yields negatively (about 17% for rice and 14 % for wheat)
- ❖ If there will be no adaptation to Climate Change, majority of farmers would be the economic losers
- ❖ With Adaptation to Climate Change (through technology and management), there would be significant decrease in poverty and improvement in the livelihood of farming community.

(Agricultural Model Inter-comparison and Improvement Project (AgMIP) Pakistan 2012-2014)

- 1- سال 2040-69 کے دوران درجہ حرارت میں قابل ذکر اضافہ ہو سکتا ہے۔ جو کہ دن کے وقت 2.8°C اور رات کو 2.2°C تک ہوگا۔
- 2- گرمیوں کی بارش میں 25 فیصد اضافہ اور سردیوں کی بارش میں 12 فیصد تک کمی کا امکان ہے۔
- 3- مندرجہ بالا موسمی تغیرات کی وجہ سے دھان کی پیداوار میں 17 فیصد اور گندم کی پیداوار میں 14 فیصد تک کمی ہو سکتی ہے۔
- 4- اگر موسمی تغیرات کا مناسب بندوبست نہ کیا گیا۔ تو کسانوں کی اکثریت کو معاشی نقصان کا سامنا کرنا پڑے گا۔
- 5- موسمی تغیرات کے سدباب (بذریعہ نئی ٹیکنالوجی کا استعمال اور بہتر نظم و نسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

(ایگمپ پاکستان 2012-2014)